

Capital, Time Preference, and Entrepreneurial Action.
The Middle-Income Trap in the Perspective of the Austrian Capital Theory

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Abstract

This paper applies the Austrian capital theory to the problem why emerging economies fall into the middle-income trap and how they may escape. On their way to form a part of the rich economies, many developing countries become stuck in the so-called middle-income trap. After a spurt of rapid development when these countries surpass the poverty trap and the Malthusian trap, and the path seems open to reach the high-income level, these emerging economies, instead to go on growing, become stagnant.

This paper's central thesis says that when a developing country has come close to the income level of the industrialized countries in its catch-up process but does not open its economy to free markets and entrepreneurship, this emerging economy will fall into the middle-income trap. The analysis puts entrepreneurial action at the center with a focus on the subjectivist nature of capital and on the role of the entrepreneur as the creator of the capital structure based on expectations and his imagination.

The paper identifies grand-scale malinvestments induced by government policies as the main culprit for a country to remain stuck in the middle-income trap. Things get worse when the government, with the aim of pulling the country out of the trap, applies monetary and fiscal stimuli. Such expansive policies prolong and deepen the stagnation. In fact, these policies are of the same kind as those, which have pushed the country into the middle-income trap in the first place.

The policy conclusion of the analysis is that the way out of the middle-income requires not more, but less government intervention. Instead of more government spending, less spending is required and instead of promoting a few big companies, the country must open up its markets to the full potential of entrepreneurial action. In particular, government must take its hand off from expansionary economic policy measures because these induce and deepen the maladjustment of the country's capital structure.

Introduction

The middle-income trap denotes the growth trajectory of a developing county that achieves high growth rates in the take-off phase but falls into prolonged stagnation when

the emerging economy reaches the middle-income bracket. Such countries are prone to fall into the cycle of bad policies when the economic stagnation and the failures to bring about a recovery induce ill-designed policies and bring about a populist political environment (Dornbusch 1990).

The policy concepts that result from the Keynesian and neoclassical frameworks are inadequate to address the problem of the middle-income trap. Different from the Austrian school of economics, these dominant policy approaches focus on aggregates or on optimization problems and miss the fundamental roles of entrepreneurship and of the capital structure. The Austrian theory of capital distinguished itself through its focus on the heterogeneity of capital and on the role of the entrepreneur in shaping the capital structure.

The analysis of the middle-income trap in the light of the Austrian theory of capital reveals that the emerging country's stagnation is the result of the continuation of the policy concept that has guided the take-off process but is no longer adequate. Particularly in those countries, where the take-off phase of an emerging economy came through a government-led industrialization endeavor based on the imitation of the technologies in the rich country, there is a tendency on continuing with state interventionism, sometimes at an even greater scale (Nallari 2001). On its way of catching-up to the rich countries, the emerging economy comes a point when imitation does no more function because the paths ahead of the technological development are that much hazier, the closer one gets to the forefront of innovation. The developing country's economic and political leadership during the catch-up phase came into power in an age of apparent certainties about the country's "development strategy" and will fail now to deal with the challenges of ignorance and uncertainty.

In the perspective of Austrian capital theory, the way out of the trap is the opposite of what many emerging countries have been practicing over the past decades. Instead of more, less state intervention is required and instead of government promotion of specific enterprises under an industrial policy, one must make way for private entrepreneurship. The more the state stays at the helm of the economy, the less the entrepreneurs will have space to exert their function as the explorers of new economic opportunities. The way out of the middle-income trap is not more public spending and more public policies but instead a move to a lower tax burden and less bureaucratic regulation. What needs one must do to get out of the middle-income trap is the liberation of the entrepreneurial potential of the country. This requires the flexibilization of the labor market, tax-

incentives to re-investment profits, and full-scale privatization in the context of competitive markets.

Middle-Income Trap

For the 2018 fiscal year, the World Bank (2018) defines, based on the World Bank Atlas Method, the economies with a gross national income (GNI) per capita between \$1,006 and \$3,995 as “lower-middle income”, while the “upper middle-income” countries are those economies with a GNI per capita between \$3,959 and \$12,235. “High-income” countries are those countries, which have a GNI per capita of \$ 2,236 or more, while the “Low-income” countries are those with a gross national income per capita of \$1,005 or less in 2016 (see table 1).

Table 1
World Bank country classification

Category	Classification range (GNI)	Examples from Latin America & Caribbean
Lower-income	< 1,005 \$	Haiti
Lower middle-income	> 1,006 \$ < 3,955 \$	Guatemala
Upper middle-income	> 3,956 \$ < 12,235\$	Brazil
High-income	≥ 12,236 \$	Chile

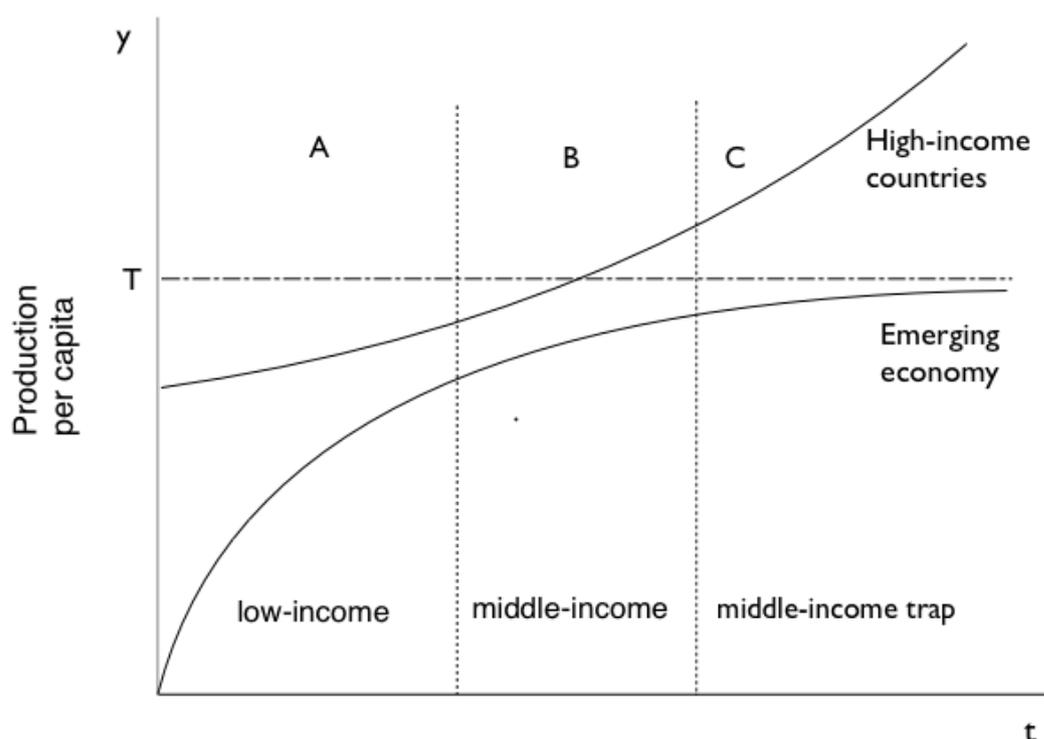
Source: World Bank Country and Lending Group: Country Classification and current classification by income

<https://datahelpdesk.worldbank.org/knowledgebase/articles/906519>

The empirical evidence of a middle-income gap is relatively clear. According to World Bank estimates (Canuto 2012), only 13 countries out of 101 middle-income economies in 1960 became high income by 2008. Eichengreen et al. (2013) find that there exist actually two modes of income levels when the slowdown occurs, one in the neighborhood of ten to eleven thousand dollars income per capita and the other at fifteen to sixteen thousand dollars income per capita. This means that the slowdown of developing country growth may take place in steps rather than at a single level. While the concept of “the” middle-income trap lacks full theoretical and empirical stringency (Larsen 2016), it is a useful heuristic category in order to analyze the nature of the challenge that a developing country faces as it moves up on the income ladder.

The middle-income trap, in this sense, occurs when an emerging country enters a period of stagnation after it has completed its "take-off" (Rostow 1956) and has overcome the poverty trap and the population trap (Glavan 2008). Having reached the medium-income level, the steep trajectory of economic growth of the past is no longer sustainable and the country enters a phase of prolonged period of stagnation (see figure 1).

Figure 1
Middle-income trap



The graph (figure 1) shows the growth trajectory in terms of production per capita of a developing country compared to the trajectory of the high-income countries. During the take-off phase (stage A), cheap labor fuels rapid economic expansion because of the migration from rural areas to the industrial cities. At this stage, the economy grows by migration, agglomeration, and capital accumulation (Shenoy 1991). Economic growth rates are high because labor is plentiful and cheap, and capital accumulation still generates high returns (stage A in figure 1). Growth rates begin to fall as labor becomes less abundant and return on capital becomes marginally smaller.

For the rich countries, the growth of the product per capita (y) over time ($\frac{dy}{dt}$) grows with an average rate of r :

$$\frac{dy}{dt} = rQ$$

For an emerging economy, seemingly exponential growth only happens in the catch-up phase, and when the product per capita (y) attains a specific limit (T) the curve thereafter becomes flat at the level of T :

$$\frac{dy}{dt} = ry\left(1 - \frac{y}{T}\right)$$

The growth curve of the rich countries is exponential while the country that falls into the middle-income trap faces a logistic growth curve. While the high-income countries continue their expansion at relatively stable growth rates, the developing country, which in the first stage (A) had higher growth rates than the developed countries and similar growth rate as the rich countries when the developing country reached the middle-income stage, its growth rates falter in the next stage (stage B in figure 1).

While the high-income countries continue to grow, the emerging economy remains in the middle-income range. The gap to the high-income countries, which has narrowed in the first stage, now begins to widen when the emerging economy falls into the middle-income trap (stage C in figure 1). The model suggests that these catch-up and fallback processes may happen several times so that after the take-off and fall into the middle-income trap, the emerging economy will begin a new catch-up run when the distance has become large again and a new imitation phase has become possible. This concept would show up in the model (figure 1) as an upward shift of T along with the country's logistic growth curve.

Brazil represents a case where entering the middle-income trap has resulted in a series of inadequate policies that have worsened the situation (Mueller 2015). The next big test case is how China will fare in the face of slower growth in the future (Schneider 2013). Remaining stuck in the middle-income trap means that the country has not succeeded in changing its growth strategy from a cumulative and imitative model to a model of a competitive, entrepreneurial and innovative economy. Simple imitation of the advanced economies generates high returns only when the distance between the emerging economy and the advanced countries is large. When distance decreases, imitation becomes more difficult and riskier. The future is unknown and requires experimentation to discover which technology will work. As the certainty of imitation vanishes, the new trajectory requires trial and error, which implies much more sophisticated skills than the mere imitation of a mature technology under state control would necessitate.

The more the emerging economy advances and approaches the advanced economies, the more the developing country must engage in an active search of its own for the next technology. A side effect of government-led growth is typically a widening of the public sector. As the country reaches the middle-income range, the state sector turns into a barrier against the advancement of the country into the high-income bracket. The governments maintain their interventions in the economy as the transition to a competitive economy finds popular resistance on the part of the powerful apparatus of state-owned enterprises and the political class (Easterly 2002). When the take-off had come along with an expansion of state activity, the presumption often prevails that more state control instead of less would be the answer to respond to the slowdown. Yet the consequence of this policy is not economic growth but clientelism, corruption, and the misallocation of resources (Kurer 1993).

The Austrian approach to capital and development

While there is no specific “Austrian theory of economic development”, Austrian economics has a rich body of concepts that may help to clarify the fundamental challenges of economic development (Manish 2015). In particular, the literature about capital and the business cycle provides an ample arsenal to analyze the problems associated with the middle-income trap.

Although capital and entrepreneurship play an essential – maybe *the* essential – part in the everyday workings of the modern economy, the role of capital and entrepreneurship are almost entirely absent in the mainstream version of modern macroeconomics. It is only in Austrian economics that capital and entrepreneurship play a prominent role. The capital structure in terms of the stages of production has provided the foundation for the formulation of the Austrian theory of the business cycle, which continues to be a major topic in the Austrian research program.

Yet there are also deficiencies in the Austrian concept of capital. The problematic status of the Austrian capital theory is partly the result of conceptual problems that have their origin in an objectivist view of capital and roundaboutness and furthermore that the stages of production are conceptualized as a macroeconomic phenomenon. A subjectivist re-interpretation of capital and a microeconomic view of the stages of production may help to shed new light on the role of profit and loss, investment, savings and the emergence of malinvestment.

Despite the effort that Hayek (1941) put in his "Pure Theory of Capital", he could not achieve a concise theory of capital. Hayek made decisive steps forward to purify the concept of capital from some of its objectivist attributes but failed to integrate entrepreneurship into his theory, probably because his focus was oriented towards macroeconomics in order to obtain a foundation of his business cycle theory.

The analysis presented here serves as a complement to modern versions of capital-based macroeconomics. Garrison (2001) and others (Horwitz 2000) developed models that study the business cycle and the role of credit expansion in its impact on the capital structure (Lewin 1995 and 1999) and the role of money (Salerno 2010, Selgin 1994). Garrison has advanced the Austrian theory of the business cycle by developing an approach that links features of standard macroeconomic modeling with Hayek's theory of the business cycle. Garrison (2001) advanced the Mises-Hayek business cycle theory (Mises 1912, Hayek 1931, 1941), yet he did not incorporate fully subjectivism and entrepreneurship. The present paper advances these approaches by modeling roundaboutness. The model presented here puts entrepreneurial action at the center of the analysis. We elaborate the subjectivist nature of capital and the role of the entrepreneur as the creator of the capital structure based on expectations ex-ante and on imagination.

The subjectivist nature of capital

Hayek (1979) once stated that it is "is probably no exaggeration to say that every important advance in economic theory during the last hundred years was a further step in the consistent application of subjectivism." Indeed, if one recognizes that capital is heterogeneous, logical consistency requires a subjectivist approach to capital and roundaboutness because the unity of the existing capital structure is no longer objectively given but will only exist in the imagination of the entrepreneur in the form of a plan. Such a perspective opens up the theory of capital to acknowledge uncertainty and "makes room for the creativity and autonomy of individual choice" (O'Driscoll and Rizzo 1985:1). The subjectivist perspective leads to a view of the economic process that is fundamentally different from the objectivist position. The objectivist definition of capital can do no other than postulate homogeneity and throw out uncertainty and entrepreneurship, while the subjectivist theory of capital leads to a view of the capital where uncertainty, choice and entrepreneurial action not only receive due attention but become constitutive elements of the theory of capital.

A well-founded theory of capital is still absent in modern textbook macroeconomics. Capital appears in the growth theories mathematically simplified as the homogeneous blob K that expands and shrinks according to the rates of investment and depreciation. In this objectivist view, capital exists independent from human action and entrepreneurial imagination.

The prominent Solow-Swan growth model (Barro 2004) incorporates a production function of the Cobb-Douglas type where the output depends on the production factors labor (N) and capital (K). The productivity of both of these factors rises with the technological progress (A) whose value shifts the production function upwards.

$$Y_t = A K_t^\alpha N_t^{1-\alpha}$$

$$\frac{Y_t}{N_t} = A \frac{K_t^\alpha N_t^{1-\alpha}}{N_t}$$

Maybe it is no exaggeration to say that almost all difficulties of modern macroeconomics to come to grips with reality have their roots in the lack of a theory of capital. It is mainly by ignoring capital that the theoreticians of modern macroeconomics have been deluded to follow pipe dreams and construct models like sand castles. This neoclassical growth model assumes that the economy's capital structure remains unchanged in the face of capital accumulation and technological progress occur. This implies that what matters were only capital accumulation and technological and that the capital structure would require no attention. This way, the neoclassical growth model can do without the entrepreneur. As the consequence of this lack of realism, the model has instigated a plethora of policy errors by its naïve practitioners.

Different from the neoclassical concept of capital as a homogenous entity devoid of a structure and time, the Austrian approaches views capital as heterogeneous and intimately linked to time. From this major difference, all other differences between the two concepts of capital do follow. Of the leading macroeconomic paradigms, Keynesian economics has only expenditures in its focus and abandoned capital theory, and in monetarism, the real economy and its capital structure have vanished completely, while the neoclassical growth theory uses capital in an oversimplified and highly deceiving manner.

The neoclassical growth theory stylizes capital as stock. Consequently, the replacement and maintenance of capital becomes a problem of addition and depreciation,

which can take place discontinuously or periodically. Because this approach treats capital (if it is mentioned at all outside of growth theory¹) as something that can be increased by capital additions without changing the structure of the existing capital stock, it follows that there is no need for an entrepreneur. The decision to increase or not to increase or – when technical progress is included – which technology to apply vanishes from the analytics and the existing capital stock could be managed by an automaton or a political committee including the organs of the central government. This type of modeling eliminates the essential properties of capitalist production. The structural aspects of capital and the function of the entrepreneur remains in the dark. In this context, with the concept of capital as a measurable unit that supposedly represents the aggregate of capital goods, erroneous propositions emerge such as that the aggregate expenditures determine the demand for capital and labor. By neglecting capital, modern macroeconomics has lost its aptitude to discern one of the most fundamental problems of the business cycle: the built-up of malinvestment in the excessive boom and the re-balancing (or “re-coordination”) of the capital structure in the bust.

The central problem of a non-Austrian theory of capital is the assumption of a homogenous and quantifiable capital stock. As Lachmann (1956:6) pointed out long ago, such a theory is "bound to ignore important features of reality". Because this theory disregards the heterogeneity of capital, "the true function of the entrepreneur must also remain hidden" (ibid. p. 16). In such a theory “investment becomes merely a question of changing the absolute quantity of this homogeneous capital stock. Its *composition* does not interest the economist whose theory of investment is bound to be somewhat fragmentary.” (ibid. p. 49)

It is a different case with the Austrian approach². The Austrian position holds that non-permanence is the characteristic attribute of capital goods and thus the problem of continuous reproduction and re-structuring of capital receives attention. In Austrian economics, it is "not the individual durability of a particular good but the time that will

¹ A recent textbook, for example, which carries the promising title “Recessions and Depressions. Understanding Business Cycles”, there is no entry for “capital” in the index, and the few times “capital” is mentioned at all, it is in the meaning of “capital flows”. See Knoop (2004)

² Hayek (1944) denotes the opposing paradigm to his theory the “Anglo-American” concept of capital in contrast to the “Austrian” concept of capital. But the designation “Anglo-American” capital theory is rather ambiguous as Hayek himself makes it clear when he states that the classical English economists were in many aspects much more “Austrian” than their followers. Yet it is easy to avoid this notion because almost any branch of economics other than the Austrian theory has adopted the neoclassical or “Anglo-American” variant of capital theory. Therefore, it is legitimate to differentiate between the “Neoclassical” and an approach to capital theory that can be defined specifically as “Austrian” in an effort to highlight the major differences.

elapse before the final services to which it contributes will mature that is regarded as the decisive factor. That is, it is not the attributes of the individual good but its position in the whole time-structure of production that is regarded as relevant” (Hayek 1944:48).

As to the choice of technology, neoclassical economics assumes that the choice about which of the many known technological methods to employ depends on current supply and demand conditions, and the given state of technology determines the technique employed in production. Likewise, this theory supposes that capital is being increased in the sense of a lateral expansion of production, as a simple duplication of the kind of capital already in existence because the homogeneity assumption provides the indispensable foundation of this approach.

In sharp contrast to the homogeneity thesis, the Austrian capital theory stresses that companies employ additional capital change the capital structure and the use of the techniques of production. Additional capital leads to structural changes of capital, and as such, investment is not a mere addition or subtraction in relation to an existing capital stock, but new investment will transform the original capital structure. The relative changes in the demand for consumer and production goods guide the entrepreneur to manage the changes in the capital structure and thus it is not aggregate demand as given by the total money expenditure that accounts for the direction of capital accumulation. Therefore, in this model, it is not necessary to assume that expansion of production requires the existence of unemployed resources. The structural changes of capital allow for the assumption of full employment. As a major consequence of these different views emerges the distinction that in non-Austrian economics the demand for investment goods and consumer goods will move in the same direction on an aggregate basis, while in the Austrian perspective the demand for capital goods will occur in the opposite direction from the demand for consumer goods.

In contrast to labor and land, capital has no objective physical dimension. Capital exists in the form of heterogeneous capital goods whose unified representation exists in the mind of the entrepreneur in the form of expectations and imagination. The capital structure of a business venture is the result of plans and comes into being by bearing uncertainty and the cost of time and money. Even in a highly advanced economy where all kinds of tools are readily available and an almost permanent stream of new technologies is at hand, production will take time and will happen in stages according to the causal demands of the structure of production. One cannot bake the bread before harvesting the grain. Like all extended human action, entrepreneurial action requires to

abide the causal logic of production and the conscientious application of time in order for the product to run through the production process towards maturity. Production does take time and gaining productivity through roundaboutness implies sacrifice in the sense that immediate satisfaction must be postponed in the pursuit of the exploitation of a trade-off to get more or better goods in the future by abstaining from potential consumption now. Capital appears empirically as heterogeneous production goods, but as such, they do not represent capital. Capital emerges when entrepreneurial planning and action combine the heterogeneous capital goods as tools in order to realize the production process with the goal of earning a profit. Capital goods become capital, one can say, only as far as the production goods become part of a structural arrangement according to the entrepreneurial logic of the enterprise. The heterogeneity of capital goods becomes capital proper when the production goods become tools and as such receive a specific position in the production process. Capital in this perspective exists as the intention in the human mind of the entrepreneur who directs the enterprise.

For economic growth to happen, capital accumulation is not enough. The main claim of the Austrian approach is the dictum that while capital accumulation is a necessary condition it is not a sufficient condition for economic development. All failures of "development policy" (Bauer 2000) can be pinpointed down in this point. The quintessential form of capitalist production is not capital expansion but managing changes of the capital structure. Any such change, as it comes with investment, implies that some parts of the capital structure will become obsolete. The result of roundaboutness will only show up after some time. It is here that the role of the entrepreneur comes into play as the agent to specify the capital structure under the guidance of expected profit and losses. This view clarifies the role of "technological progress" and avoids the troubles that modern macroeconomics has with increases in productivity due to new technologies or improvements of human capital.

Capital in contrast to labor has no natural physical dimension. It is only by the entrepreneurial plan that the capital structure will gain its coherence as capitalist logic. Capital as a homogenous entity exists as financial capital and thus, in its monetary representation, serves as an accounting tool (Mises 1998:231 et passim). It is only in its financial representation that capital is an aggregate to which additions and from which subtraction could be made without affecting its structure. Yet in the process of production, capital exists as heterogeneous capital goods, and in this form, capital has no natural unit of measurement other than an entrepreneurial valuation based on intention, imagination,

expectation, and plan. “The idea of capital has no counterpart in the physical universe of tangible things. It is nowhere but in the minds of planning men.” (Mises 1998:511)

Different from the common assumption in conventional macroeconomics, investment, too, lacks an objective criterion as it refers to the specificity of which goods to apply. As such, investment is based on speculation in the form of entrepreneurial appraisal that not only refers to the “quantity” of investment but also and sometimes even more so to which kind of goods to apply, i.e. in which form technological advancement should occur. Investment requires a judgment that goes beyond enlargement or reduction because investment will have an impact on the existing capital structure. Entrepreneurship in this sense is not so much “alertness” (Kirzner 1973) – a concept which would imply costless profits from discovery. Entrepreneurship is also not mainly technical and administrative progress (Holcombe 2003). The entrepreneurial investment activity rather shows up as the pursuit of productivity gains, i.e. it appears as purposive action in the move towards economic progress (Schumpeter 1942) which, more specifically results from the pursuit of the profit motive (Mises 2008). This means that technical progress and the improvement of human capital lies in the act of investment itself in as much the investment activity is guided by the entrepreneurial intention to apply changes to the capital structure as a tool to gain profit.

The entrepreneur is the essential link between the market signals and the capital structure. The task of the entrepreneur is quite different from how it appears in conventional economic theory where an “investment function” describes the relation between the interest rate and the amount of investment flow that would happen accordingly. This approach eliminates the entrepreneurial function and provokes the caricature of the entrepreneur as a mindless automaton on the one side or an equally mindless creature ruled by animal spirits on the other side. In such a world, no visionary roundabout production can happen.

Investment in new equipment requires time until the results will show up. It is in this sense that plans and purposeful action are required to bring it about. As such, investment cannot be modeled as simple additions to existing capital, but attention will be drawn to the fact that for some prolonged time the output that is expected from the investment in new equipment will be below the level of the standard production procedures currently in place. Roundabout production means that the *expected* later result has to outpace standard production and that in this calculation the formation of expectations and the interest rate will play a decisive role. In terms of the *ex-ante* expected

result, as it is given by the entrepreneurial expectations, future *expected* results have to outpace conventional production methods by a considerable margin in order to come into consideration. Expected results of roundabout production must be substantially higher than those that are given by the currently applied production methods, and one might add they need by illusionary higher, because roundabout production requires waiting time and involves a transformation of the existing capital structure, the management of a process that is full of obstacles and finally incalculable.

Capitalist Production

Böhm-Bawerk's major contributions consist in the causal explanation of the interest rate as the result of time preference and his explanation that the unique form of "capitalist production" exists in the use of roundaboutness. For Böhm-Bawerk, the specific "capitalist production" consists in roundabout production³, which has the advantage of greater technical productivity while its disadvantage consists in a "sacrifice of time".

Doing business consists in the realization of entrepreneurial plans by way of a trial-and-error procedure led by the criterion of profitability. The entrepreneurial action consists in coming up with an idea, transforming the idea into a plan and realizing the plans in a continuous process of adaptation to constantly emerging new circumstances. Doing business consists in maintaining the stream of goods by incessant adaptation to local and temporary conditions and as such, it includes the revision of plans and expectations in the face of the changing market condition. The appraisal and re-appraisal of the changes of relative prices are only one of the guides in the process of allocation, while the availability

³Böhm-Bawerk provides this instructive example to explain the character of roundaboutness: "A peasant requires drinking water. The spring is some distance from his house. There are various ways in which he may supply his daily wants. First, he may go to the spring each time he is thirsty and drink out of his hollowed hand. This is the most direct way; satisfaction follows immediately on exertion. But it is an inconvenient way, for our peasant has to take his way to the well as often as he is thirsty. And it is an insufficient way, for he can never collect and store any great quantity such as he requires for various other purposes. Second, he may take a log of wood, hollow it out into a kind of pail, and carry his day's supply from the spring to his cottage. The advantage is obvious, but it necessitates a roundabout way of considerable length. The man must spend, perhaps, a day in cutting out the pail; before doing so he must have felled a tree in the forest; to do this, again, he must have made an axe, and so on. But there is still a third way; instead of felling one tree he fells a number of trees, splits and hollows them, lays them end for end, and so constructs a runnel or rhone which brings a full head of water to his cottage. Here, obviously, between the expenditure of the labour and the obtaining of the water we have a very roundabout way, but, then, the result is ever so much greater. Our peasant needs no longer take his weary way from house to well with the heavy pail on his shoulder, and yet he has a constant and full supply of the freshest water at his very door. (Böhm-Bawerk, *The Positive Theory of Capital*, 1884, p. 18)

of savings is the major signal to provide orientation as to the *inter-temporal* allocation of available funds.

The attention paid to capital in its relation to time and its characteristics as being the concomitant of roundaboutness lies at the heart of Austrian economics. The realistic recognition that capital is heterogeneous brings with it a fundamentally different perspective compared to the neoclassical assumptions. Heterogeneity of capital implies that the capital structure exists as combinations of complementary elements that are arranged by entrepreneurial plans (Lachmann 1978:12). The unifying focal point of capital is the imagination of the entrepreneur who arranges the capital goods in a way that he deems appropriate to meet future demands with the intention to earn profits. With the concept of roundaboutness and the heterogeneity of capital, it is brought to light that the outcome of investment requires time and waiting, and as such, investment is confronted not only with risk but with uncertainty in the sense of unknown distributions of the results. In this perspective, the role of the entrepreneur comes into play as to his specific function as the anticipator of unknown future demand and prices and therefore as the preeminent economic agent whose prime specialization lies in the ordering of the capital structure under the conditions of uncertainty by way of his imagination. Here lies one of the main reasons why political bodies cannot substitute the entrepreneur without dramatic losses of efficiency.

The postulate of the heterogeneity of capital in terms of production goods draws attention to the stages of production and the complexity of capital structures. Quite different from the modeling that investment decisions receive in modern macroeconomics in terms of functional relationships, a realistic view puts entrepreneurial activity in the context of uncertainty and contingency.

Beginning with Carl Menger (1871) and followed-up by Böhm-Bawerk (1884), the heterogeneity of capital as an ordered production structure forms the starting point for the Austrian theory of capital:

“... capital is the sum of heterogeneous concrete capital goods. To aggregate them, one needs a common denominator. This common denominator cannot be found in the number of capital goods ... nor their length or width or volume, or

weight or any other physical unit of measurement. ... The only measuring rod that does not lead to contradictions ... is the value [of these capital goods].”⁴

Lachmann (1978, p. XV) asks what it is that unites capital in its concrete representation such as it shows up as “(b)eer barrels and blast furnaces, harbor installations and hotel-room furniture” other than the entrepreneurial plan and the valuations that are derived from this plan? The arrangements that take place are arrangements in terms of an order guided by a purpose. This process of valuation extends from the expectations, the plan, and the vision of the future, to the present. The valuation of capital is not causal but teleological and intentional that grounds in human action with its basic elements of time, means, and purpose (Iorio 2011)

Capital is a tool of human action. The purpose of capital accumulation is in the mind of the entrepreneur as an instrument to gain returns. In this sense capital is a “praxeological concept” (Mises 1989:512), a concept of human action. The realization of the entrepreneurial plan takes time and thus all entrepreneurial action is speculative because the plan aims at remote results whose exact outcome is uncertain. Capital has an inescapable futuristic dimension and thus it is exposed to uncertainties and contingencies. Human well-being requires a continuous stream of consumption goods, and thus time preference poses a limit to the potential degrees of roundaboutness. The problematic nature of roundabout production lies in the uncertainty about the determination of the adequate degree of roundaboutness. On the one hand, roundaboutness is the way to increase productivity; on the other hand, this pursuit may become over-extended in face of the necessity of having sufficient savings available for the time it takes to realize the project. Without roundaboutness there is no economic progress because roundaboutness is the way how technological progress happens; but if the degree of roundaboutness is too

⁴ Translated quotation from Böhm-Bawerk’s “Capital and Interest” in Hennings (1997, p. 132). Interestingly enough, Piero Sraffa, one of the major intellectual forerunners of what is now called “post-Keynesian” economics, put the problem quite succinctly in a letter to Joan Robinson of October 1936, although even his belated recognition after what Böhm-Bawerk had already said almost 40 years earlier seems to have met deaf ears not only by Joan Robinson regarding Sraffa’s reminder that “(if) one measures labor and land by heads or acres the result has a definite meaning; subject to a margin of error On the other hand if you measure capital in tons the result is purely and simply nonsense ... If you are not convinced, try it on someone who has not been entirely debauched by economics. Tell your gardener that the farmer has 200 acres or employs 10 men - will he not have a pretty accurate idea of the quantities of land & labour? Now tell him that he employs 500 tons of capital & he will think you are dotty – (no more so, however, than Sidgwick or Marshall).” Quoted in King (2002: 80/1)

high, incompatibilities between the urgent needs for consumption goods and the capital structure to deliver this stream of consumption goods will occur (Strigl 2000:6-14).

At the micro level, the rejection of roundabout production involves the risk of losing out to the competitor and to disappear from the market, while the pursuit of too high degrees of roundaboutness confront the risk of over-extension relative to savings, and the investment project is prone to bankruptcy. This decision about the adequate degrees of roundaboutness constitutes the essence of entrepreneurship. When the state eliminates the entrepreneur, the central aspects of uncertainty and time of roundaboutness vanish because the governmental decision makers operate with no skin the game (Taleb 2018). It is also so that this problem is being completely neglected by modern macroeconomics. What makes a good entrepreneur, we may ask. And the answer would be that a good entrepreneur would be one who has the skills to invest in the right kind of capital goods at the right dimensions.

Any capital enhancement requires time. In this sense, roundaboutness entails “active waiting” and the extent to which waiting is possible for the extended production process in order to deliver a higher output of consumption goods depends on savings. The demand for capital is not determined by the absolute expenditure going into consumption goods but is dependent upon the relative demand for consumption and production goods. Therefore, demand for capital does not vary directly with the demand for consumption goods, but in fact, moves in opposition to it (Hayek 1931 and Garrison 2001).

There is a trade-off between present consumption and capital accumulation, between changes in the rate of current consumption and the degree of roundabout production. More roundaboutness means moving along the stages of production axis to a higher degree of waiting and the implementation of more stages of production that are required for the production process to deliver the rise of consumable output later on.

The term “stages of production” has the basic praxeological meaning that production is not a continuous process but consists in a series of distinct steps, such as it happens when producing a meal or writing a book. One cannot put the meal on the table before it is cooked, and one cannot read the book before it is written. Production takes place in time, but it is not only chronological time or averages of chronological time that count but "economic time", i.e. time defined in terms of the arrangement of production stages. Putting the meal on the table is a stage of its own as it the case when a book is put into the showcase of the bookstore. Stages are distinct and have their own characteristics. In

almost all cases of production, specialization is defined and develops in terms of specific stages of production be it the baker or the farmer or the writer and the publisher.

A specific production good does not have a value *per se* but receives its valuation through the entrepreneur's judgment as to the position of this specific production good within the overall time-consuming process of production. The definite position that is assigned to the assemblage of specific production goods within the chain of the stages of production is the origin of the value of this specific production good and is derived by entrepreneurial judgment about the estimated future demand for the final product. The various stages of production will have different durations measured by chronological time, as it happens, for example, with the time that it takes to grow a tree as opposed to felling it or transporting the good to the store and its exposition in the showroom waiting for this product to be sold and exit from the world of production to enter and finally disappear in the world of consumption. The value of production goods that are physically similar or seemingly identical attain their specific value by their position within the chain of production which in turn is the result of the entrepreneurial plan guided by the appraisal of current relative prices and the expectation as to the future price structure. For a good to go through the stages of production takes time, and these stages will have different chronological durations, but in the economic perspective, each phase represents a different and distinct stage of production whose relevance comes from its position within the arrangement. Like in language, the meaning is not derived from the word but from its position within the sentence, while the context is derived from the purpose of communication.

A negative change of consumption represents a decrease in consumption in relation to the existing production structure. In a growing economy, such a change need not signify less consumption in absolute terms but would signify reductions of consumption potential. The stages of production are represented in relation to the point where the production process results in the output of the consumption good, i.e. the final good. In order to accomplish more roundabout production, investment has to shift from consumption to investment.

More investment and thus more roundaboutness will take place at various stages of production and in order to accomplish a harmonious expansion should affect all stages of production in order to accomplish an overall extension of roundaboutness.

The move towards the new production structure takes place as an expansion and as a process of substitution and complementation. The Keynesian framework, for

example, regards only the move towards expansion and neglects the function of relative prices and of entrepreneurial action to manage the shape of the structure (curved line) in a continuous process of adaptation. The shaped line represents what is commonly called “business fluctuations”.

Relative price signals alarm and incentive the entrepreneur about bottlenecks that need to be removed and excess capacity that need to be reduced to move on with the expansion towards its final position. Such a “final position”, of course, does not exist in real economic life because the economic process will go on and thus the shape of the Hayekian triangle itself is in constant flux. The resources shift from consumption to investment in order to expand the production capacity and get a higher value. The move from the original to the new production structure happens in the context of

- a) Change of time preference
- b) Reduction of potential consumption
- c) Increase of savings
- d) Lower interest rate
- e) Productivity changes
- f) Change of relative prices

Relative prices of goods and services together with the price for labor and the interest rate as the price for giving up temporarily instant satisfaction serve as the essential tools of information as to how the entrepreneurs should arrange the production structure in a market economy, and it is these signals that also provide the incentives in the ongoing process of capital structuring and restructuring.

Roundaboutness implies a re-shifting of the existing capital structure and as such the process will be accompanied by a profound uncertainty of the outcome of the investment in terms of the future consumption demand. The entrepreneurial plan has no other basis than the *expected* profits seen from the *ex-ante* perspective. It is the unexpectedness of specific circumstances when the realization of plans takes place that where the managerial function comes into play. In this sense, management is the adaptation to the new circumstances as they emerge *here and now*, as the peculiar circumstances of place and time. Management consists in the transformation of the entrepreneurial into reality as a trial-and-error procedure under the guidance of the result as it is measured by profit and loss. Business in this sense does not begin or end with “a project” but is a never-ending

process of adaptation of existing capital structures to new circumstances and the revision of expectations and the creation of new visions.

Micro- and macroeconomic malinvestment

Malinvestment takes place in two forms. On the individual business level, wrong investment decisions happen when the entrepreneur misreads the potential demand for his product. This kind of failed investment can be called “*microeconomic malinvestment*”. Competition serves to eliminate those businesses that will commit this kind of misjudgment. Competition serves as a process of selection whereby the successful entrepreneur earns profits and can go on, while the unsuccessful entrepreneur, as determined by the market participants, suffers losses and is forced to retrench or move out of the market. In this respect, market competition works as a selection mechanism that favors successful action and eliminates unsuccessful entrepreneurial action according to the final judgment by the consumers.

A different case, however, arises with an economic recession or depression, when it is not individual business errors that are the reason for losses, but that the macroeconomic environment has misled entrepreneurial action. The resulting “*macroeconomic malinvestment*” has a different origin and a different phenomenology than *micro-malinvestment*. These macroeconomic malinvestments arise from a systematic falsification of the signals of time preference and of the availability of resources when a monetary policy has set an interest rate to transmits erroneous information and sends misleading signals about the macroeconomic conditions, and particularly about the feasibility of the degrees of roundaboutness to the entrepreneur.

It is appropriate to differentiate between management errors and entrepreneurial errors. Management errors are failures as the result of bad administration while entrepreneurial errors have their origin in failed roundaboutness. Failures of miscalculation of roundaboutness can be both of a micro- and of a macroeconomic nature. On the individual business level, wrong investment decisions happen when the entrepreneur misreads the potential demand for his product. This kind of failed investment can be called “*microeconomic malinvestment*”. Competition serves to eliminate those businesses that will commit this kind of misjudgment. Competition serves as a process of selection whereby the successful entrepreneur earns a higher profit and can go on, while the unsuccessful entrepreneur, as determined by the market participants, with the consumer as the final arbiter, suffers losses and is forced to retrench or move out

of the market. In this respect, market competition works as a selection mechanism that favors successful action and eliminates unsuccessful entrepreneurial action according to the final judgment made by the consumers.

At the micro level, these errors are inherent to the competitive process. A typical microeconomic failure of this kind occurs when the competitor comes out ahead with a superior product or beats the lagging company in having selected the better time frame for roundabout production. The successful company beats its competitors by coming out ahead of the losing business by choosing the more effective way of roundabout production. For the losing business which innovated this means that the result may be worse than if it had adhered to the standard production because failed new roundaboutness involves higher costs than the continuation of standard production.

In the long run of economic development, the higher degrees of roundaboutness will bring about productivity gains, but in the day-to-day operations, the continuation of standard production methods may be less costly and therefore superior to a roundabout production that fails to get out ahead of the competitors in time. If business decisions were simply of the kind to use ever more capital and to apply the latest technology, one could do away with entrepreneurial judgment. Yet it is exactly this specifying decision as to the kind and extension of roundaboutness where entrepreneurial appraisal comes fully into play. Making the right decision on whether to innovate or not to innovate and when to innovate to which degree to innovate sets the good entrepreneurs apart from the rest.

Malinvestment of the macroeconomic kind is the result of policy changes. These may affect only certain sectors of the economy or the economy as a whole. Errors that affect certain sectors of the economy involve all those policy changes that come with regulation, taxation, and changes in government spending. These kinds of malinvestment will cause smaller or larger disruptions of the economy and affect the economy's growth potential. Macroeconomic errors proper, however, lie at the heart of economic contractions, when it is not individual business errors that are the reason for losses, or when not only specific sectors of the economy are affected, but when the macroeconomic environment has misled entrepreneurial action in a large scale. The resulting "*macroeconomic malinvestment*" has a different origin and of a different phenomenology than *micro-malinvestment*. These macroeconomic malinvestments arise from a systematic falsification of the signals of time preference and of the availability of resources when monetary policy translates into an interest rate that transmits erroneous

information and produces misleading signals about the macroeconomic conditions and particularly about the feasibility of the degrees of roundaboutness.

While micro-malinvestment business errors tend to cancel each other out and make for an improvement of overall economic efficiency, because the mechanism of selection is also a device of learning and as such serves to promote economic progress, business decisions that are misled by erroneous *macro signals* will result in collective entrepreneurial errors and it is in this sense that “any business cycle theory is essentially a theory of error” (Hülsmann 1998:1). Here the miscalculation of time is the result of an interest-rate policy that has deceived entrepreneurs across the board about the availability of savings. In so far as the interest rate affects any investment decision, the overall business community is enticed to embark upon roundaboutness to a degree that later on to turn out to be too high. This is the case when there is at first a massive boom that will be followed by a massive bust. In this regard, the monetary interest rate plays a central role in the entrepreneurial decision if and to what extent roundabout production will be initiated and to what extent it will result in success or failure.

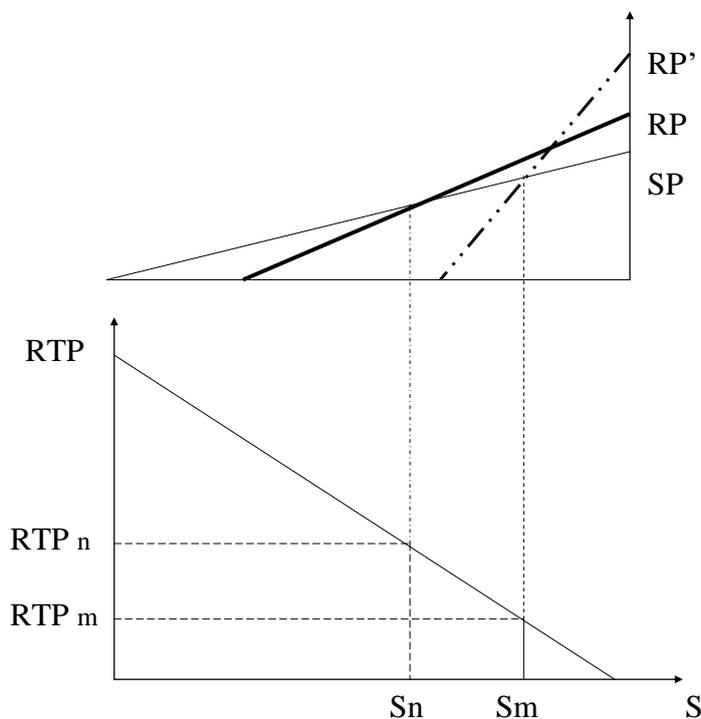
It is typical for the occurrence of macroeconomic malinvestment that a monetary interest rate is brought into existence that does not reflect the availability of savings but the supply and demand for credit. In the modern monetary system, such a divergence is more the rule than the exception because it is not only by monetary policy decisions that such a deviation will be brought about, but such a divergence between the monetary interest rate and the natural rate is also inherent to the workings of a fractional reserve banking system (de Soto 2006).

As it is the case with other policy interventions when the price system gets manipulated by policy or distorted institutions have emerged (as it is the case with central banking in the context discussed here) the policy interest rate tends to transmit false signals and provide false incentives. A deviation of the monetary interest from its natural level, from that level which would result from the unhampered interplay between foregone consumption and investment, produces errors that show up in the structure of production. The degree of the implementation of roundaboutness has to be in tune with time preference, the availability of resources in the form of authentic savings and the purchasing power and tastes of the consumers. This coordination gets disrupted when false signals are provided by the interest rate. Central banking falsifies both to the upside in the boom and to the downside in the bust information about the availability of authentic savings. While in the phase of the credit boom, central banks tend to deceive the

entrepreneurs with the illusion of an abundance of savings, the opposite happens in the phase of the credit crunch where authentic savings, in fact, are available, but the financial intermediaries hold back lending.

An interest rate that is set too low in relation to a rate which would equilibrate authentic saving and investment induces business to initiate roundaboutness to a degree that is not sustainable given the availability of authentic savings, i.e. that amount of savings that reflects the state of time preference (RTP_n in figure 2).

*Figure 2
Unsustainable Roundaboutness*



The consequence of an additional money supply is equal to an apparent increase of savings ($S_m - S_n$, as shown in figure 2), an increase that is not based on the prevailing rate of time preference. In such a case, entrepreneurs are enticed to pursue projects that cannot be finalized (project RP' in contrast to project RP) because consumers are unwilling to give up part of their demand for consumption goods (as given by S_n in figure 2).

The result on the incongruence will be the emergence of unfinished projects when the expansionary policy has to be abandoned as the economy runs into bottlenecks or

creditors begin to panic. In the bust phase “idle resources” will emerge, both in the form of unusable capital and unemployable labor. Yet it is not the existence of “idle resources” per se which constitute the economic policy problem, but that the reason why the projects have is the consequence of failed roundaboutness for which the idle resources stand as a symptom.

In this perspective, the persistence of the middle-income trap results from the combination of three types of malinvestments:

1. Microeconomic malinvestment because of errors about the specific business project (sometimes called bad planning)
2. Macroeconomic malinvestment because of false monetary signals
3. Malinvestments because of weak markets (monopolization) and a dominant public sector

Why Development Policies Fail

Economics as the theory of human action deals primarily with a monetary economy based on the division of labor. Direct exchange and Robinson Crusoe-models may serve as theoretical points of reference, but their fictitious character must be kept in mind. By focusing on money, Austrian economics contrast strongly in relevance when compared to other models of economics. When applying its methodological principles to money, Austrian economics regards such a phenomenon as the interest rate or the demand for money as the results of human valuation. The central focus of the Austrian theory of money is directed at the theory of interest as it reflects subjective valuation.

In its originary form, the interest rate is the discount that human action must give to later available goods compared to earlier available goods, which may render the same service but at different points in time. If it were otherwise, man would not act. Human action implies by necessity a preference for the immediate. To put it in another way: In an imaginary world without an originary interest rate, savings would become infinite.⁵ The central thesis of Mises' (1998, pp. 521) monetary theory consists in the proposition that the monetary rate of interest may deviate from the neutral rate due to money creation (or

⁵ On the other hand, an unlimited rise of this rate would finally eliminate saving. The difference between the originary rate and monetary rate of interest becomes obvious when thinking about the elimination of interest income (by expropriation or taxation). Then, saving would stop and cause the consumption of accumulated capital as its consequence, precisely because the originary rate of interest cannot be removed from human valuation (Mises 1998, pp. 524).

its contraction) in the credit markets.⁶ If the money rate falls below the neutral rate and thus deviates from the ordinary rate of interest, the monetary rate will deviate from the original valuation between the present and future goods, and, as future goods have become relatively cheaper the demand for them will increase.

By using sequential analysis instead of the fiction of an immediate or “all at once-adaptation”, Misesian theory points out that money affects economic agents heterogeneously. Money cannot be neutral because it enters the economy not at once nor in the same quantities for all economic agents. While money may or may not change the price level, it will always change relative prices and with it the relative fortunes of individual economic agents.

In the words of Mises (1998, p. 552):

“The essence of monetary theory is the cognition that cash-induced changes in the money relation affect the various prices, wage rates, and interest rates neither at the same time nor to the same extent. If this unevenness were absent, money would be neutral; changes in the money relation would not affect the structure of business, the size and direction of production in the various branches of industry, consumption, and the wealth and income of the various strata of the population.”

The monetary rate of interest cannot be a neutral rate of interest in the sense that it would be the monetary expression of the original rate of interest because changes in money affect prices not homogeneously and instantly. Money enters the economy at specific points of economic activity and gets into the hand of specific economic agents first and from there on spread to other economic activities and other economic agents and affects the rest of the economy.⁷ Only perfect foresight could transform the monetary rate of interest into a neutral rate by applying a price premium. But the formation of expectations about a certain direction of prices is heterogeneous and must remain uncertain.

This monetary theory is based on individual valuation and sequential analysis and leads to the Austrian theory of the business cycle which holds that credit expansion and

⁶ A somewhat different starting point is given by Hayek as his theory also contains elements of the „real business cycle“ making his approach in this regard “un-Austrian”, see his “Pure Theory of Capital”, London 1941; for Mises, in contrast, the central point is prolonged growth of credit creation, which may also be the result of reduced risk perception, when government or central bank bailout guarantees are presumed to exist.

⁷ Even if the change in the quantity of money could be known in time, and if it were known for which kind of activities it enters the economy, it is impossible to know ex ante how this will affect the different prices. It is principally impossible to foresee how, when and to what degree individual valuations will change.

contraction bring about deviations of the monetary rate of interest from the ordinary rate and thus transmits false signals and leads to misallocation between the production of immediate and future goods. Easy money creates an illusion of wealth and instigates disruptions of production process while consumers aspire for the acquisition of goods that rank higher in their timescale. Now, in the boom period, goods that were regarded as “luxuries” appear to be within one’s reach. Yet because the real wealth of the economy cannot be increased by money, misallocations occur in the economy, which later will require reversals brought about by a recession.

The nominal interest rate deviates from the natural a) with the expected positive and negative inflation rate and b) with increase and decrease of macroeconomic liquidity. Macroeconomic liquidity comprises the monetary base multiplied by the banking multiplier and the velocity of money. The fluctuation of macroeconomic liquidity around the level set by authentic savings, which brings about changes of the nominal rate, feeds directly into expansive and contractionary movements of the economy. The oscillation of the cyclical production frontier around the natural production frontier is an expansion and contraction of the economy that is different from economic growth, which would show up as a rightward shift of the natural production frontier

Without policy intervention and with the expectation of a zero-inflation rate, the economy settles at the natural rate of interest and the current production is equal to the natural production frontier.

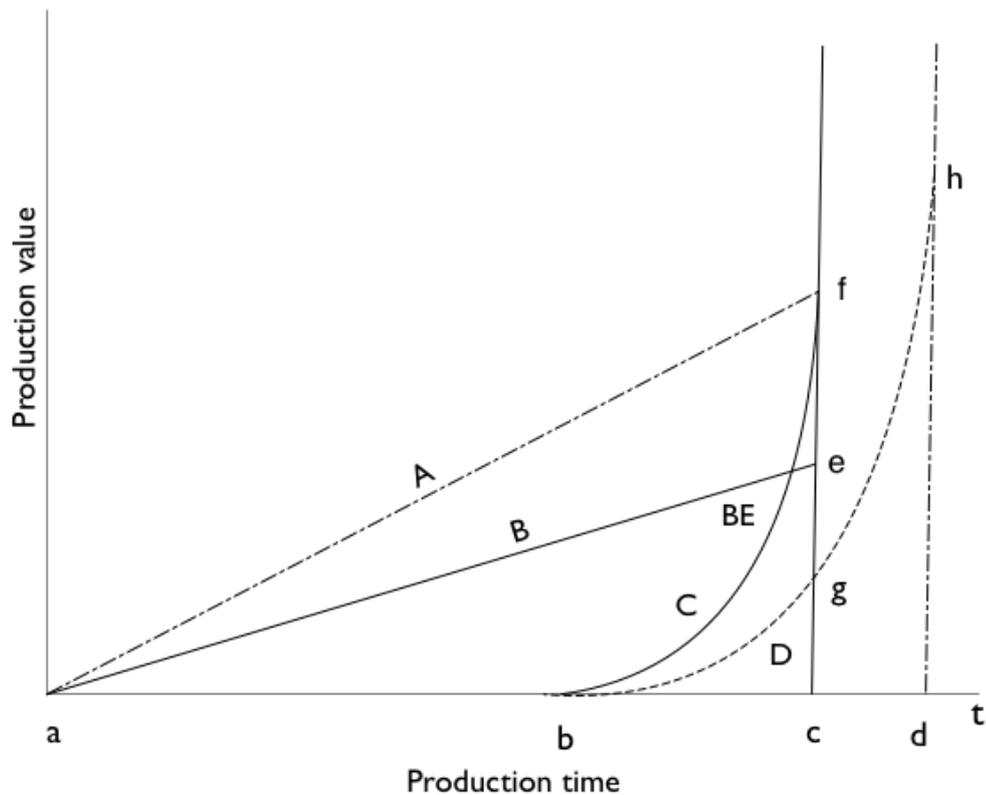
When the monetary and fiscal authorities initiate expansive policies and the macroeconomic liquidity rises, the nominal interest rate falls at first below the natural rate and provokes an economic expansion, primarily starting with higher investments. Yet when time preference has not changed, the plans of the investor clash with the consumers. While investors want a higher share of the income, the receivers of income want to maintain their consumption plans. If the expansive monetary policy were limited to one impulse, things would settle down as soon as the higher inflation rate leads to a higher interest rate (this time above the natural rate). Yet when expansive and fiscal policies continue, this return to normalcy cannot take place and the interest rates may remain below the natural rate for a prolonged time.

With the expectations that interest rates would remain low, businesses embark upon the more time-consuming project. The investment horizon widens with the low-interest rates as projects become apparently viable that would not be profitable at the natural rate. The monetary expansion thus feeds into a real economic expansion.

Such an outcome would be in tune with the intention of the policymakers when they base their expectations on the concept of aggregate demand. A different outcome, however, will occur, when the extended investment project must fail because of sufficient savings. When the interest has fallen only because of the expansion of macroeconomic liquidity and the time preference has remained constant, the receivers of income have not saved the additional amount to finance the investment but have maintained their level of consumption. When this is the case, wrong investments have taken place. Such malinvestments will not bring the expected higher returns because the economy cannot maintain the extended capital structure. There is a lack of savings because of the present consumption has left no funds for the additional investment because of the lower interest rate.

The graph of Figure 3 depicts the occurrence of malinvestments as the result of an extended capital structure due to misleading interest rate signals.

Figure 3
Malinvestment



In the graph (Figure 3), the line B denotes a standard production. The production moves across time, the value of the production increases steadily as the supply chain and sales are well in place and production takes place in a routine way in terms of an evenly rotating economy. In contrast to the routine production, new investment projects have uncertain outcomes and with innovation, in particular, the production value will remain below the routine production as shown by curve C. It is typically only towards the end of the maturation of the production process that the project reaches its break-even (BE). When things go on as planned and when the interest rate remains constant, the innovation will bring about a higher level of output and become the new standard production procedure (A). Things are different, however, when macroeconomic policy comes into play. With the lower interest rate, the investment horizon has expanded from c to d.

Such an outcome would be in tune with the intention of the policymakers when they base their expectations on the concept of aggregate demand. A different outcome, however, will occur, when the extended investment project (D) must fail because of insufficient savings. When the interest rate has fallen only because of the expansion of macroeconomic liquidity and the time preference has remained constant, the receivers of income have not saved the additional amount to finance the investment but have maintained their level of consumption. When this is the case, wrong investments have taken place. Such malinvestments will not bring the expected higher returns because the economy cannot maintain the extended capital structure. There is a lack of savings because of the present consumption has left no funds for the additional investment because of the lower interest rate. The time preference has remained at the original range of a-c, while investors were made to believe that the available time frame were of the extent a-d.

Role of Entrepreneurship

It is worthwhile to remind that Schumpeter (1912) put forth his theory of the entrepreneur in the context of economic development. While classical economics focused on the division labor and therefore almost exclusively on the specialization of labor, and identified labor as the main source of productivity, the approach taken here identifies the creation of the capital structure as the origin of increases in productivity. Indeed, capital goods are “crystallized labor”, but the capital structure is the work of the cooperation through completion of the business entrepreneurs. While the workman gets his pay in the form of a salary for working and the capitalist gets interest paid for waiting, the entrepreneur gets his reward in the form of profits. Profits depend on the degree how well

the entrepreneur was able to construct a capital structure that is in tune with the consumption demands when the structure is ready to produce output. It is obvious that there can be no certainty about the value of the capital structure *ex-ante* and thus for profit. By its very nature, profits are a residual remuneration and must necessarily be so.

The capitalist process that leads to more productivity consists in a process of increasing division of capital and thereby to move the economy towards higher degrees of capital specialization. The increasing division of capital implies a rising level of “structural complexity” (Lachmann 1978:54). This aspect cannot be grasped by a model that presupposes that capital is homogeneous. Schumpeter (1942) characterized the capitalist process as “creative destruction” because new methods make earlier procedures obsolete. However, the emphasis should be laid more on creativity than on destruction. It is not so much destruction that happens but creative *reconstruction* because many if not most of the “old” capital parts will be used to create the new structure.

Given that all entrepreneurial activity is directed towards an unknown future, the occurrence of errors is unavoidable and cannot be eliminated how elaborate or sophisticated the tools of “prognosis” ever should become. This condition of inescapable speculation is the root of entrepreneurial profit and loss. Speculation implies the uncertainty of success or failure. Even more so, in economic speculation, the actors do not play against machines whose “class probability” (Mises 1998, ch. 6) can be mathematically established, but operate in the context of a social environment of unexpected change where not only the future is unknown but also current information is incomplete (Lachmann 1957: 22). In the face of such a challenge, the estimates of probability become irrelevant not only because of the uniqueness of decisions (Shackle 1949) but also because of the heterogeneity of the situations (Lachmann 1957:26). The closed character of non-Austrian capital theory has not only expelled the role of the entrepreneur but with this elimination, this theory has also blocked its approach towards an adequate understanding of malinvestment and business failure.

A specific production good does not have a value *per se* but receives its valuation through entrepreneurial judgment as to the position which the specific investment good is to have within the overall process of production and where it is to make, so to speak, “sense”. Production goods with the same physical properties can have different functions depending on their position in the production process. The various distinct stages of production will have different durations measured by chronological time, as it happens, for example, with the time that it takes to grow a tree as opposed to felling it or

transporting it to the factory where a stool is made and from where the piece goes to a store and is exhibited in the showroom. The good remains an investment good as long as it is not sold to the final user and only at that point in time, it turns into a consumption good.

The value of production goods that are physically similar or seemingly identical attain their specific value by their position within the chain of production which in turn is the result of the entrepreneurial plan guided by the relative prices and the expectation as to the future price of the resulting consumption good. For a specific good to go through the stages of production requires time, and these stages will have different chronological durations, but in the economic perspective, each phase represents a different and distinct stage of production whose relevance comes from its position within the arrangement. The definite position that is assigned to a specific production good within the chain of the stages of production is the origin of the value of this specific production good and is derived by entrepreneurial judgment about future demand for the final product. Like in language, the meaning is not derived from the individual word but from its position within a sentence, and where likewise a sentence derives its meaning from the context in which it stands, with all of that linked to the purpose of communication.

The concept of capital as roundaboutness based on entrepreneurial plans provides the starting point of a distinct theory of boom and bust as it emerged with the contributions of Ludwig von Mises and Friedrich von Hayek. The main contrast between the Austrian approach and other theories is that in the Austrian tradition, capital expansion and its contraction are changes in its longitudinal structure, and expansions and contractions imply a restructuring of the *present* state of the capital structure. “Investment decisions determine not merely, as Keynes would have it, the ‘rate of investment’, but also determine the concrete character of each new capital good ... Each new capital good forms part of a whole and has to fit into a capital combination.” (Lachmann 1953: 117) Thus, in the perspective of Austrian economics, industrial fluctuations are not just the result of a maladjustment between planned savings and planned investment, “but also the result of structural maladjustment caused by the first type of maladjustment.” (Lachmann 1953: 114)

The concept of the stages of production relates to the point where the production process results in the output of the final good. A natural process of economic expansion occurs as it is given by the sequence of lower time preference first and consequently an increased readiness to sacrifice time. More waiting time allows a shift of resources to the

more remote stages of production. As its consequence, the production frontier will expand allowing an increased output later and thus a higher level of consumption. In other words: roundaboutness of this kind means the recognition that before a good can be consumed, it has to be produced at first, and given that time preference has been decreased, that higher degrees of roundaboutness can be applied to the production process.

Economic Policy Conclusions

Outside of Austrian economics, the subjective, structural and time-consuming aspect of capital formation gets neglected and with it comes the view that it is purely quantitative additions or subtractions to an existing capital *stock* that would count in the process of capital accumulation. Along with this view, many other aspects also get lost such as that capital formation is highly vulnerable to detrimental policy interventions. It is widely accepted that negative legal surprises would induce the entrepreneur to cut back on the degrees of roundabout processes or refrain altogether abstain from initiating them. However, monetary policy changes also will distort the basis of economic calculation. The interest rate plays a central role in the entrepreneurial decision if and to what extent roundabout production will be initiated and to what extent the project will result in success or failure. Typically for the occurrence of macroeconomic malinvestment is a policy interest rate that was set too low in relation to available savings and which later on tends to be set too high by the monetary authorities in order to correct their earlier mistake. The artificially low-interest rate induces business to initiate roundaboutness while in the correction phase the higher interest rate now signals that the process has become overextended. The consequence will be that unfinished projects show up whose visible side are "idle resources" both in the form of unused capital and unemployable labor yet whose hidden nature exists in earlier malinvestments.

An unfavorable business climate will discourage the undertaking of roundaboutness and even if there are guarantees of the property rights, roundabout production will be discouraged when strict anti-monopoly laws and excessive levels of taxation limit the realization of pioneer profits. It is characteristic of new production techniques that they become the standard over time and thus the advantages of innovation will have a limited lifespan. As much as there is competition between firms about finding the right product and the best product mix, the other major competitive factor is the question what kind of capital to apply. Within an unfavorable business climate, business will mainly invest in

standard production and the more roundabout production procedures will be avoided. When this is the case, the economy will suffer from low productivity levels.

Innovation is accompanied by uncertainty about the outcome of the investment. These uncertainties extend beyond future demand and include changes in the overall business climate during the process of maturation until the higher productivity will show up in the goods production and until the profits can be realized. In an unfavorable business environment, productivity will stagnate because more roundabout production procedures will be avoided, and standard production methods tend to be maintained. The entrepreneurial plan has no other basis than the *expected* profits seen from the *ex-ante* perspective and as such an essential part of entrepreneurial action exists in imagination.

Emerging economies fall into the trap of middle-income because, instead of embracing innovative capitalism, they maintain a statist economic system. It is not uncommon for the old elite to exploit the population's fear of the "perennial storm of creative destruction" (Schumpeter 1942) of the dynamic capitalism. Yet by opposing creative destruction, one also ends up rejecting prosperity and feeds the illusion that it is possible to enrich itself within a static system. In fact, developing countries that maintain state capitalism not only do not gain prosperity but also lose stability when they inevitably fall into the vicious circle of economic decline, causing the political system to begin to oscillate between authoritarianism and populism.

To get out of the trap of the middle-income trap, the developing country must perform a fundamental transformation in its economy. The country must move from a cumulative and imitative economy to an innovative economy. Instead of a top-down transformation, the economy needs to blossom at the bottom. The way out of the middle-income trap cannot be made through more government but must be led by private entrepreneurship. This change requires the elimination of the regulatory and bureaucratic obstacles that hold back the entrepreneurial sector. Reducing the tax burden and eliminating the bureaucratic nightmare are essential. The government must abandon its ad hoc interventionism, which creates uncertainties, in favor of a policy that facilitates entrepreneurship.

Brazil, as a case, put itself into its misery through Keynesian development policy. Expansionary fiscal and monetary policies in an attempt to get out of the middle-income trap only exacerbated the situation. Such policies lead to imbalances between savings, investments, spending, and the exchange rate. Without technological progress to offset this gap, the economy will not recover. Even worse will be the situation if the government widens the budget deficits as this lowers the national rate of savings.

The macroeconomic policies of the countries that are stuck in the Middle-Income Trap, Brazil included, suffer from the same error that Mises had denounced by the allegory of the master builder who tries to build a house in a size that exceeds the de facto dimension of available resources.

Conclusion

Middle-income countries, after overcoming the poverty trap and the Malthusian trap, face the depletion of cheap labor. An emerging country falls into the middle-income trap when it simultaneously loses its ability to compete with low-income countries in terms of prices and, at the same time, does not yet have the capacity to compete with high-income countries in terms of technology. The interference of the state in the economy causes these countries to fall into stagnation. Trying to get out of the trap using monetary and fiscal stimulus policies not only does not work, but actually paves the way for public debt, and generates more economic weakness. This group of countries, of which Brazil is a prominent case, suffers from recurrent cycles of artificial economic expansion followed by prolonged stagnation. To continue to grow, the country must have technological progress. However, if the country resorts to budget deficits and monetary inflation, the government programs the opposite course. To achieve higher levels of productivity, the country must abandon its system of state capitalism, which was chosen as the method for take-off. To get out of the middle-income trap, the emerging economy must open markets to the entrepreneurial capitalism of creative destruction.

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